IN THE CLAIMS:

1. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by an AC synchronous permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein:

the motor has at least three phases, and

each of the at least three phases are continuously driven by an inverter that switches a voltage in the range of 1000 V -- 4000 V.

2. (Canceled)

3. (Canceled)

4. (Previously Presented) A method according to claim 1, wherein the pump is a centrifugal pump.

5. (Previously Presented) A method according to claim 1, further comprising recovering the wellbore liquid to the surface.

6. (Previously Presented) A method according to claim 1, further comprising transporting the wellbore liquid from a first subterranean location to a second subterranean location.

7. (Previously Presented) A method according to claim 1, wherein the pump is operated at more than 5,000 rpm.

8. (Previously Presented) A method according to claim 1, wherein the pump is operated at 7,000 to 7,500 rpm.

9. (Previously Presented) A method according to claim 4, wherein the pump draws the wellbore liquid from a plurality of lateral wellbores into a central pump.

10-32. (Canceled)

33. (Previously Presented) A method according to claim 1, wherein the pump is operated at more than 6,000 rpm.

34. (Previously Presented) A method according to claim 1, wherein the pump is operated at approximately 7,200 rpm.

35. (Canceled)

36. (Previously Presented) A method according to claim 1, wherein:

a power supply of the motor is located at the surface, and

the power supply models operation of the motor and calculates a rotor position of the motor.

37. (Previously Presented) A method according to claim 1, wherein a power supply of the motor comprises a variable voltage chopper.

38. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by a permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor, comprising:

a central shaft;

a plurality of tubular elements spaced axially along the shaft; and

a plurality of support rings spaced axially along the shaft between the tubular elements and serving to support the tubular elements on the shaft so that the tubular elements are rotatable with the shaft;

a plurality of permanent magnets spaced about a circumferential outer surface of each of the tubular elements;

a respective retention sleeve tightly fitted over the permanent magnets on each tubular element so as to retain the permanent magnets on the tubular element; and

a stator coaxial with the rotor, comprising:

a stack of laminations; and

radially spaced coils wound around the stack,

wherein the motor has at least three phases and at least two of the phases are driven at a time.

39. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by a permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor, comprising:

a central shaft; and

a carrier sleeve loosely fitted on the shaft; and

rings closely engaging the shaft and supporting the carrier sleeve; and

a stator coaxial with the rotor, comprising:

a stack of laminations; and

radially spaced coils wound around the stack,

wherein the motor has at least three phases and at least two of the phases are driven at a time.

40. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by a permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor, comprising:

a central shaft; and

a plurality of permanent magnets having axial ends;

a carrier sleeve mounted on the shaft and bearing the magnets;

a retention sleeve extending over the magnets; and

at least one stress-relieving radially outwardly extending abutment part on the carrier sleeve abutting an adjacent axial end of the magnets, wherein:

the retention sleeve hast at least one end portion turned in over the abutment part to retain the magnets in position on the carrier sleeve without damaging the axial end of the magnet, and

the motor has at least three phases and at least two of the phases are driven at a time.

41. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by a permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor, comprising:

an elongate central shaft; and

elongate permanent magnets extending along the shaft, the magnets comprising axially laminated parts to reduce eddy current losses; and

a stator coaxial with the rotor,

wherein the motor has at least three phases and at least two of the phases are driven at a time.

42. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by a permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor;

a stator coaxial with the rotor;

a bearing mounting the rotor to the stator;

a resiliently biased projection disposed on one of the stator and the bearing; and

a receiver disposed on the other of the stator and the bearing,

wherein:

the projection is operable, by rotation of the rotor, to engage the receiver, thereby rotationally coupling the bearing and the stator, and

the motor has at least three phases and at least two of the phases are driven at a time.

43. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by a permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor;

a housing;

a stator coaxial with the rotor and mounted in the housing;

an axial groove formed in one of the stator and the housing; and

an axial key engaging the axial groove, thereby rotationally coupling the housing and the stator,

wherein the motor has at least three phases and at least two of the phases are driven at a time.

44-50. (Canceled)

51. (Currently Amended) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by an AC synchronous permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein:[[:]]

the motor is driven from a power supply through a variable voltage chopper and an inverter, and

the variable voltage chopper is provided with an input voltage comprising a portion of a total fixed voltage provided from the power supply.

52. (Previously Presented) A method according to claim 51, wherein the pump is a centrifugal pump.

53. (Previously Presented) A method according to claim 51, further comprising recovering the wellbore liquid to the surface.

54. (Previously Presented) A method according to claim 51, further comprising transporting the wellbore liquid from a first subterranean location to a second subterranean location.

55. (Previously Presented) A method according to claim 51, wherein the pump is operated at more than 5,000 rpm.

56. (Previously Presented) A method according to claim 51, wherein the pump is operated at 7,000 to 7,500 rpm.

57. (Previously Presented) A method according to claim 52, wherein the pump draws the wellbore liquid from a plurality of lateral wellbores into a central pump.

58. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by an AC synchronous permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor, comprising:

a central shaft;

a plurality of tubular elements spaced axially along the shaft; and

a plurality of support rings spaced axially along the shaft between the tubular elements and serving to support the tubular elements on the shaft so that the tubular elements are rotatable with the shaft;

a plurality of permanent magnets spaced about a circumferential outer surface of each of the tubular elements;

a respective retention sleeve tightly fitted over the permanent magnets on each tubular element so as to retain the permanent magnets on the tubular element; and

a stator coaxial with the rotor, comprising:

a stack of laminations; and

radially spaced coils wound around the stack.

59. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by an AC synchronous permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor, comprising:

a central shaft; and

a carrier sleeve loosely fitted on the shaft; and

rings closely engaging the shaft and supporting the carrier sleeve; and

a stator coaxial with the rotor, comprising:

a stack of laminations; and

radially spaced coils wound around the stack.

60. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by an AC synchronous permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor, comprising:

a central shaft; and

a plurality of permanent magnets having axial ends;

a carrier sleeve mounted on the shaft and bearing the magnets;

a retention sleeve extending over the magnets; and

at least one stress-relieving radially outwardly extending abutment part on the carrier sleeve abutting an adjacent axial end of the magnets,

wherein the retention sleeve hast at least one end portion turned in over the abutment part to retain the magnets in position on the carrier sleeve without damaging the axial end of the magnet.

61. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by an AC synchronous permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor, comprising:

an elongate central shaft; and

elongate permanent magnets extending along the shaft, the magnets comprising axially laminated parts to reduce eddy current losses; and

a stator coaxial with the rotor.

62. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by an AC synchronous permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein:

the motor comprises:

a rotor;

a stator coaxial with the rotor;

a bearing mounting the rotor to the stator;

a resiliently biased projection disposed on one of the stator and the bearing; and

a receiver disposed on the other of the stator and the bearing, and

the projection is operable, by rotation of the rotor, to engage the receiver, thereby rotationally coupling the bearing and the stator.

63. (Previously Presented) A method of pumping wellbore liquid, comprising:

installing an electric submersible pump, driven by an AC synchronous permanent magnet motor, in a wellbore; and

operating the pump at more than 4,500 rpm to pump the wellbore liquid,

wherein the motor comprises:

a rotor;

a housing;

a stator coaxial with the rotor and mounted in the housing;

an axial groove formed in one of the stator and the housing; and

an axial key engaging the axial groove, thereby rotationally coupling the housing and the stator.

64. (Previously Presented) A method of pumping wellbore liquid according to claim 1, wherein the motor is sealed from the wellbore liquid.